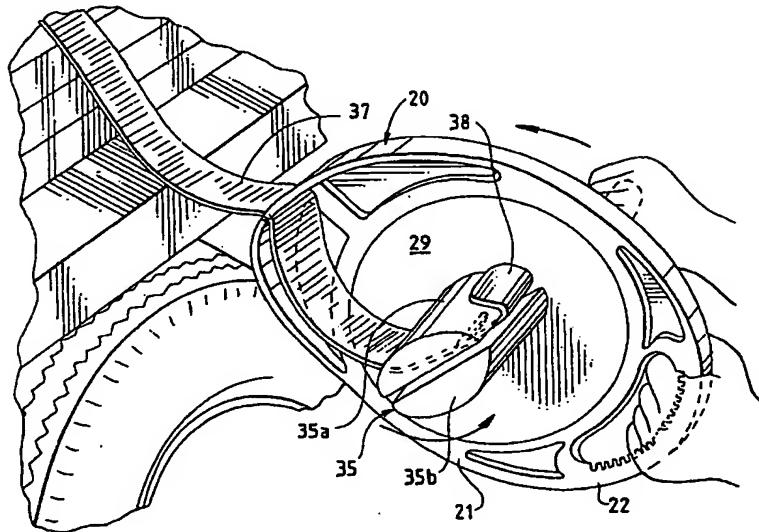


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(71) QUICK WINCH PRODUCTS, INC., US
(51) Int.Cl. ⁶ B65H 18/10, B65H 75/12
(30) 1997/07/09 (08/890,520) US
(54) **DISPOSITIF D'ENROULEMENT DE COURROIE**
(54) **STRAP WINDER**



(57) Dispositif à main d'enroulement de courroie constitué d'un élément de base plan et de forme ovale comportant une poignée, d'un axe sur lequel est enroulée la courroie et d'un élément de guidage de courroie disposé dans le grand axe de l'ovale.

(57) A hand held strap winder has an oval, planar base with a hand grip, a hub on which the strap is wound and a strap guide aligned on the major axis of the oval base.



STRAP WINDER

ABSTRACT OF THE DISCLOSURE

A hand held strap winder has an oval, planar base with a hand grip, a hub on which the strap is wound and a strap guide aligned on the major axis of the oval base.

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PATENT

STRAP WINDER

DOCKET NO. 1155.00001

CROSS-REFERENCE TO RELATED APPLICATION

5 Not applicable.

STATEMENT REGARDING FEDERALLY SPONSORED
RESEARCH OR DEVELOPMENT

10 Not applicable.

BACKGROUND OF THE INVENTION

15 Straps used to secure loads on trucks are typically woven of a fabric, as nylon, and are generally two, three or four inches wide. The straps may be as long as 15 or 20 feet. After a load is removed, the truck driver must secure the straps for reuse when the truck is again loaded. The straps are generally secured by winding each of them in a flat coil.

20 Several strap winders have been proposed:

Pickering U.S. Patent No. 3,954,226

Vice U.S. Patent No. 4,007,887

Ramos et al. U.S. Patent No. 4,266,740

Galland U.S. Patent No. 4,311,288

25 Webster U.S. Patent No. 4,390,141

These strap winders have not been widely adopted and in practice many

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drivers wind the straps by hand, a time-consuming and non-productive activity.

BRIEF SUMMARY OF THE INVENTION

This invention is concerned with an improved hand-held strap winder.

- 5 More particularly, the strap winder has a base, a hand grip on the base, a rotatable hub on one side of the base to receive the strap to be wound, a manual crank handle on the other side of the base for rotating the hub to wind the strap and a guide on the base for directing the strap to the hub as the hub is rotated, the grip, hub and strap guide being aligned.
- 10 Another feature of the strap winder is that the base is planar and has a central opening therethrough defined by a circular seat with a circular disk rotatably mounted on the seat and exposed on both sides of the base. The hub is at the center of one side of the disk and the manual crank handle on the other side of the disk is offset from the disk center.
- 15 A further feature is that the hand grip is arcuate and has a length to accommodate a first hand position at the upper end of the hand grip with the guide facing upwardly to receive a strap from above, and a second hand position at the lower end of the hand grip with the guide facing downwardly to receive a strap from below.

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Yet another feature of the winder is that base is molded plastic and the strap guide comprises two integral fins extending from the planar base on the same side as the hub and having spaced apart surfaces defining a strap slot on a line extending through the hand grip and hub; and the spaced apart slot-defining surfaces have square edges which engage the strap, eliminating kinks and curls as the strap is drawn through the guide.

BRIEF DESCRIPTION OF THE SEVERAL VIEW OF THE DRAWINGS

- Figure 1 is a perspective view of the strap winder in use;
- 10 Figure 2 is an exploded perspective view of the strap winder;
- Figure 3 is an enlarged fragmentary perspective of the base, seat, disk and retaining ring;
- Figure 4 is a section taken along line 4-4 of Figure 3;
- Figure 5 is a fragmentary side view showing a strap with a hook partially wound on the hub;
- 15 Figures 6 and 7 are side views showing the strap winder held to wind a strap from above and below the winder position, respectively; and
- Figure 8 is a fragmentary perspective showing the strap guide which straightens the strap as it is wound.

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DETAILED DESCRIPTION OF THE INVENTION

The strap winder 20 has a planar oval base 21, Figures 1 and 2, with a hand grip 22 at one end of the major axis 23 of the base. A strap guide 24 is at the other end of major axis 23. A circular opening in the base is defined by 5 a seating surface 26, the center of the circular opening being at the intersection of major axis 23 and minor axis 27 of the base. A rotatable circular disk 29 has a peripheral flange 30 held on the seat 26 by a retaining ring 32, secured by screws 33. Disk 29 has a hub 35 at the center on one side and a manual crank handle 36 adjacent the disk periphery on the other side. The hub 35 has two spaced apart sections 35a, 35b, with arcuate outer surfaces. 10

An end of the strap 37 to be wound is engaged with the hub 35. The strap winder is held by the user in one hand and the disk 29 turned with the other hand drawing the strap through guide 24, winding the strap on the hub.

Strap 37 typically has a hook 38 at one end. The body of the hook fits 15 in the space 40 between hub sections 35a, 35b, and the end of the hook engages the arcuate outer surface of the hub section 35a, as shown in Figures 1 and 5. Where the strap 37 is wound from an end without a hook 38, the end of the strap is inserted in the space between hubs sections 35a and 35b, and a couple of turns taken around the hub, anchoring the strap.

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The strap winder 20 is symmetrical and may be held in either hand with the crank handle 36 positioned to be turned by the other hand winding the strap on the hub.

When the strap is completely wound, it is removed from the hub and 5 may be stored until again needed.

Arcuate hand grip 22 is sufficiently long that the strap winder may be held in different angular attitudes to facilitate winding of the strap whether it is extended over a top of a load above the user or on the ground below the user, see Figures 6 and 7. In Figure 6, the user's hand is at the upper end of the 10 hand grip with the strap guide 24 directed upwardly to receive a strap from above. In Figure 7, the lower end of the hand grip is held with guide 24 directed downwardly to receive strap 37 from below.

The base 21, disk 29 and retaining ring 32 are preferably molded of plastic as a fiberglass reinforced polypropylene or ABS resin.

15 The strap guide 24 is formed by two fins 42, 43, molded integrally with the base, Figures 2 and 8. The slot 44 which forms the strap guide is formed by spaced apart surfaces with square edges which engage the strap being wound. These edges contribute to the ability of the strap guide to unroll kinks and twists in the strap as it is drawn through the guide to hub 35. The nominal

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thickness of strap 37 is 1/8th-3/16ths inch. A spacing of the order of 5/16ths of an inch between the surfaces of the fins which define the web guide slot 44 has been found optimum for straightening and guiding the strap without causing excessive friction.

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The embodiments of the invention in which an exclusive property of privilege is claimed are defined as follows:

1. A hand-held winder for an elongate strap, comprising:
 - 2 a base;
 - 4 a hand grip on said base;
 - 6 a rotatable hub on one side of said base to receive the strap to be wound;
 - 8 a manual crank handle on the other side of said base for rotating said hub to wind the strap thereon; and
 - 10 a guide on said base for directing the strap to the hub as the hub is rotated, said hand grip, hub and strap guide being aligned.
2. The strap winder of claim 1 in which said hand grip is arcuate and
 - 2 has a length to accommodate a first hand position at the upper end of the hand grip with the guide directed upwardly to receive a strap from above, and a
 - 4 second hand position at the lower end of the hand grip with the guide facing downwardly, to receive a strap from below.
3. The strap winder of claim 1 in which said base is planar with a
 - 2 central opening therethrough defined by a circular seat, a circular disk rotatably

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4 mounted on said seat and exposed on both sides of said planar base, said hub
4 being at the center of one side of said disk and said manual crank handle being
on the other side of said disk and offset from the center thereof.

2 4. The strap winder of claim 3 in which said base has an oval
2 configuration with major and minor axes, the center of said circular seat being
substantially at the intersection of said axes, and said hand grip is arcuate and
4 at the periphery of said base on said major axis.

6 5. The strap winder of claim 4 in which the hand grip, hub and guide
are aligned on the major axis of the oval base.

2 6. The strap winder of claim 5 in which said hand grip has a length
2 to accommodate a first hand position at the upper end of the handle with the
guide facing upwardly to receive a strap from above, and a second hand
4 position at the lower end of the hand grip with the guide facing downwardly to
receive a strap from below.

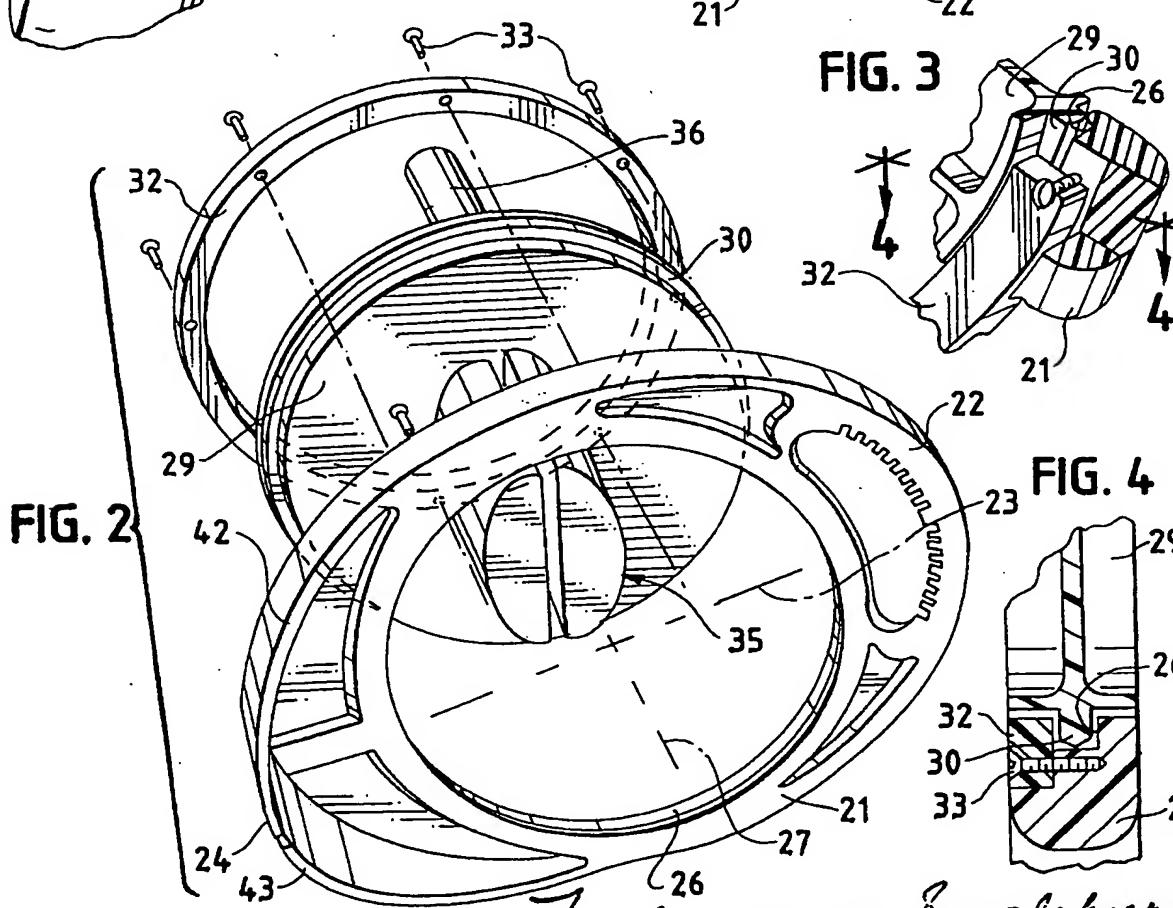
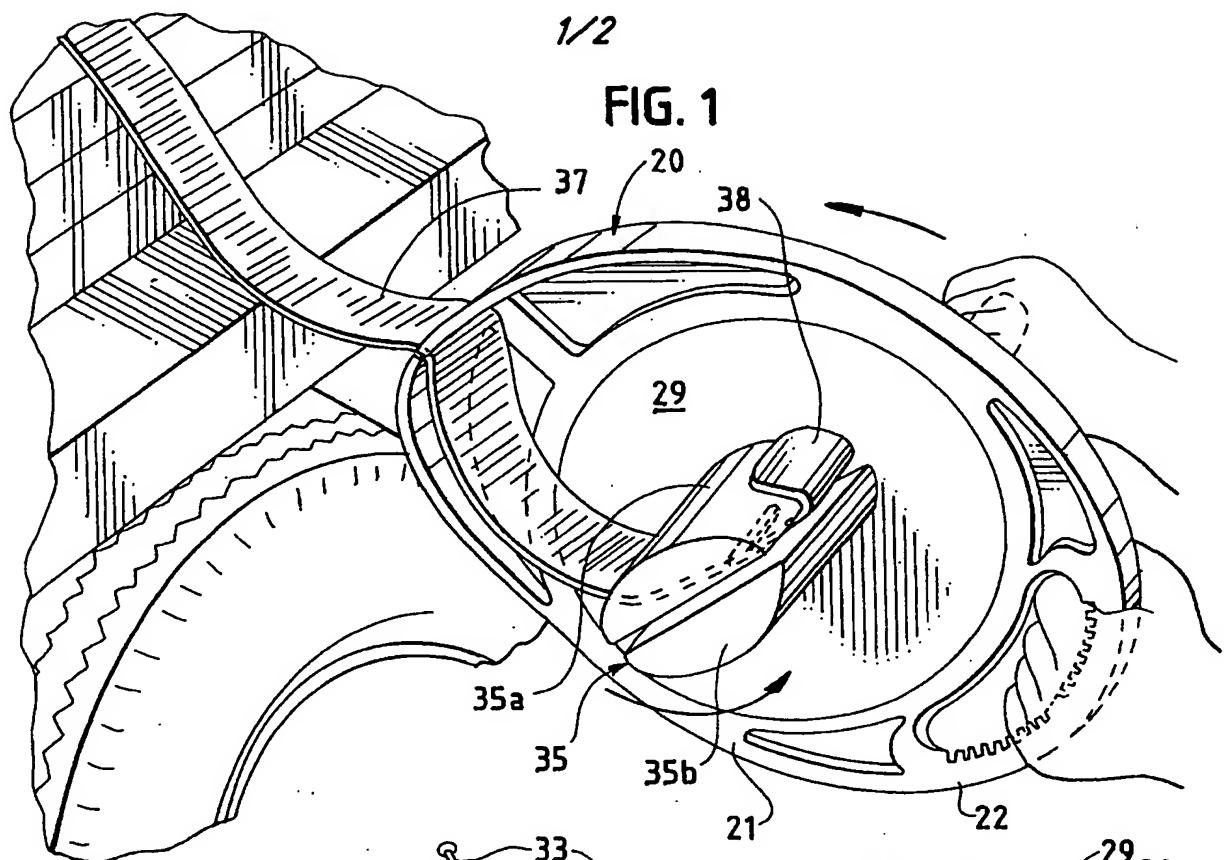
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2 7. The strap winder of claim 3 in which said base and said disk are
a fiberglass reinforced plastic.

8. The strap winder of claim 1 in which said base is molded plastic
2 and the strap guide comprises two integral fins extending from the planar base
on the same side as the hub and having spaced apart surfaces defining a strap
4 slot.

9. The strap winder of claim 8 in which the spaced apart strap guide
2 surfaces on said fins have square edges which engage the strap being wound.

10. The strap winder of claim 8 in which the surfaces are spaced
2 apart a distance in the order of five-sixteenths of an inch.



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FIG. 5

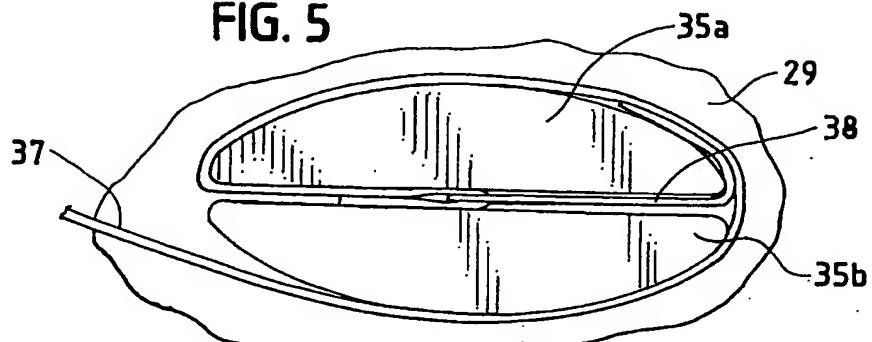


FIG. 6

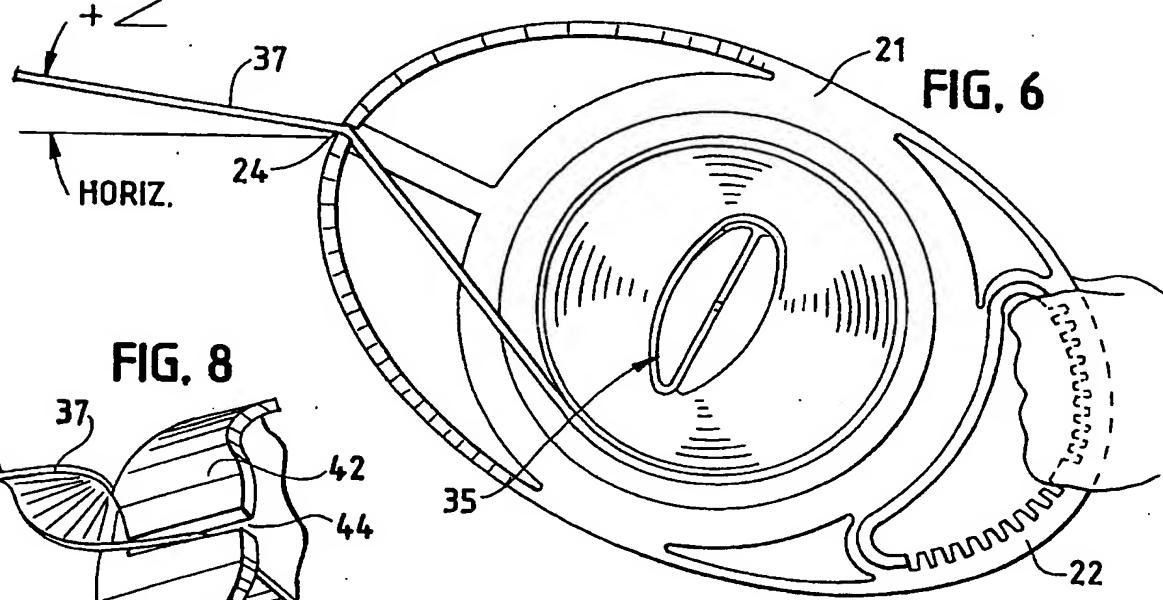


FIG. 8

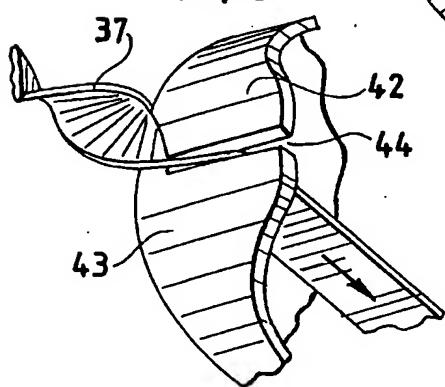
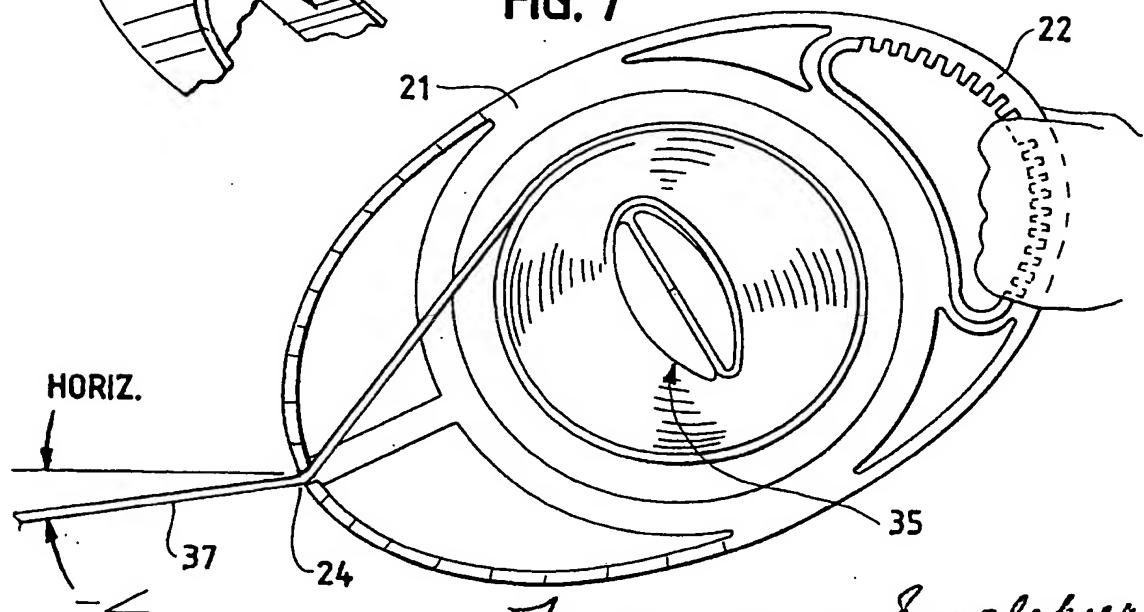


FIG. 7



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